

Inspection Report For Well: UT20736 - 06482

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah

Date: 12/10/2013

Others: Ajayi, Christopher

Time: 1:59 am / pm

OPERATOR (only if different):

REPRESENTATIVE(S): Chad Stevenson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name: Ute Tribal 29-04

Well Type: Enhanced Recovery (2R)

Operating Status: AC (ACTIVE) as of 8/11/2005

Oil Field: Antelope Creek (Duchesne)

Location: NWNW S29 T5S R3W

Indian Country: X, Uintah and Ouray

Last Inspection: 8/28/2012

Allowable Inj Pressure: 1900 /

Last MIT: Pass 9/9/2010

Annulus Pressure From Last MIT: 1070

BLACK = POSSIBLE VIOLATION

GREY = DATA MISSING

INSPECTION TYPE: (Select One)

☐ Construction / Workover

☐ Response to Complaint

☐ Other

☐ Plugging

☒ Routine

ICIS Entered

☐ Post-Closure

☐ Witness MIT

Date 12/30/13

Initials JS

OBSERVED VALUES:

Tubing Gauge: ☒ Yes
☐ No

Pressure: U: 574 / L: _____ psig
Gauge Range: Scada _____ psig

Gauge Owner: ☐ EPA
☒ Operator

Annulus Gauge: ☒ Yes
☐ No

Pressure: 0 _____ psig
Gauge Range: opened _____ psig

Gauge Owner: ☒ EPA
☐ Operator

Bradenhead Gauge: ☐ Yes
☐ No

Pressure: _____ psig
Gauge Range: _____ psig

Gauge Owner: ☐ EPA
☐ Operator

Pump Gauge: ☐ Yes
☐ No

Pressure: _____ psig
Gauge Range: _____ psig

Gauge Owner: ☐ EPA
☐ Operator

Operating Status:
(Select One)

☐ Active

☒ Not Injecting

☐ Plugged and Abandoned

☐ Being Reworked

☐ Production

☐ Under Construction

U2 Entered

Date 12/17/13

Initial JS

See page 2 for photos, comments, and site conditions.

TAB	GREEN	BLUE	OR.
		1	

Inspection Report For Well: UT20736 - 06482 (PAGE 2)

PHOTOGRAPHS:☐

Yes

☒

No

List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s):

 ☐

Data Entry

☐

Compliance Staff

☐

Hard Copy Filing

NOTICE OF INSPECTION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/10/13

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Hour: 8:00a

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts

Inspector's Name & Title (Print)

[Signature]
Inspector's Signature



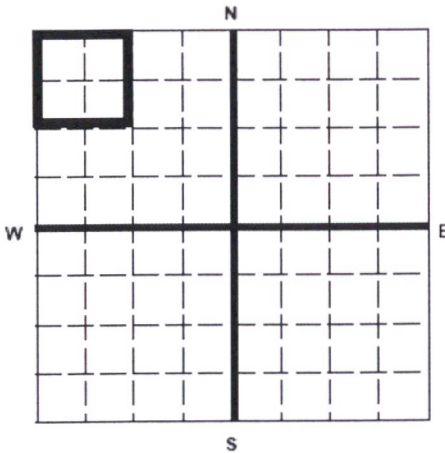
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State Utah	County Duchesne	Permit Number UT2736-06482
Surface Location Description 1/4 of 1/4 of NW 1/4 of NW 1/4 of Section 29 Township 5S Range 3W		
Locate well in two directions from nearest lines of quarter section and drilling unit Surface Location 660 ft. from (N/S) N Line of quarter section and 660 ft. from (E/W) W Line of quarter section.		
WELL ACTIVITY <input type="checkbox"/> Brine Disposal <input checked="" type="checkbox"/> Enhanced Recovery <input type="checkbox"/> Hydrocarbon Storage	TYPE OF PERMIT <input type="checkbox"/> Individual <input checked="" type="checkbox"/> Area Number of Wells 111	
Lease Name Ute Indian Tribe		Well Number UTE TRIBAL 29-04

INJECTION PRESSURE				TOTAL VOLUME INJECTED		TUBING - CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	383	383	0		0	0
February	16	346	363	0		0	0
March	16	405	421	0		0	0
April	16	402	432	0		0	0
May	16	388	399	0		0	0
June	16	397	407	0		0	0
July	16	418	431	0		0	0
August	16	437	446	0		0	0
September	16	448	494	0		0	0
October	16	493	498	0		0	0
November	16	497	502	0		0	0
December	16	486	495	0		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

03/21/2017

U2 Entered

Date

Initial

4/5/17
BB

Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**Sales Rep: **James Patry**Well Name: **UTE TRIBAL 29-04 INJ, DUCHESNE**Lab Tech: **Gary Peterson**Sample Point: **Well Head**Sample Date: **1/13/2017**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)Sample ID: **WA-345664**

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations		Anions	
		mg/L		mg/L	
Test Date:	1/24/2017	Sodium (Na):	4455.61	Chloride (Cl):	5500.00
System Temperature 1 (°F):	300	Potassium (K):	30.79	Sulfate (SO ₄):	10.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	8.25	Bicarbonate (HCO ₃):	2562.00
System Temperature 2 (°F):	130	Calcium (Ca):	26.63	Carbonate (CO ₃):	
System Pressure 2 (psig):	50	Strontium (Sr):	6.46	Hydroxide (HO):	
Calculated Density (g/ml):	1.0061	Barium (Ba):	33.45	Acetic Acid (CH ₃ COO)	
pH:	8.35	Iron (Fe):	2.01	Propionic Acid (C ₂ H ₅ COO)	
Calculated TDS (mg/L):	12664.78	Zinc (Zn):	0.48	Butanoic Acid (C ₃ H ₇ COO)	
CO ₂ in Gas (%):		Lead (Pb):	0.07	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
Dissolved CO ₂ (mg/L):	0.00	Ammonia (NH ₃):		Fluoride (F):	
H ₂ S in Gas (%):		Manganese (Mn):	0.17	Bromine (Br):	
H ₂ S in Water (mg/L):	10.00	Aluminum (Al):	0.04	Silica (SiO ₂):	28.86
Tot. Suspended Solids (mg/L):		Lithium (Li):	1.40	Calcium Carbonate (CaCO ₃):	
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	5.27	Phosphates (PO ₄):	
Alkalinity:		Silicon (Si):	13.49	Oxygen (O ₂):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.38	21.85	0.74	6.25	3.22	1.11	2.40	1.45	0.00	0.00	0.00	0.00	0.00	0.00	10.06	0.25
149.00	267.00	1.43	22.02	0.64	5.78	3.15	1.11	2.48	1.46	0.00	0.00	0.00	0.00	0.00	0.00	9.79	0.25
168.00	483.00	1.50	22.23	0.57	5.35	3.12	1.11	2.57	1.46	0.00	0.00	0.00	0.00	0.00	0.00	9.56	0.25
187.00	700.00	1.58	22.42	0.51	4.98	3.11	1.11	2.66	1.46	0.00	0.00	0.00	0.00	0.00	0.00	9.36	0.25
206.00	917.00	1.67	22.60	0.46	4.69	3.13	1.11	2.74	1.46	0.00	0.00	0.00	0.00	0.00	0.00	9.19	0.25
224.00	1133.00	1.76	22.75	0.44	4.49	3.16	1.11	2.82	1.46	0.00	0.00	0.00	0.00	0.00	0.00	9.04	0.25
243.00	1350.00	1.87	22.88	0.42	4.36	3.21	1.11	2.90	1.46	0.00	0.00	0.00	0.00	0.00	0.00	8.91	0.25
262.00	1567.00	1.98	22.98	0.41	4.31	3.27	1.11	2.96	1.46	0.00	0.00	0.00	0.00	0.00	0.00	8.79	0.25
281.00	1783.00	2.09	23.06	0.41	4.32	3.34	1.11	3.03	1.46	0.00	0.00	0.00	0.00	0.00	0.00	8.70	0.25
300.00	2000.00	2.21	23.13	0.42	4.38	3.43	1.11	3.09	1.46	0.00	0.00	0.00	0.00	0.00	0.00	8.61	0.25

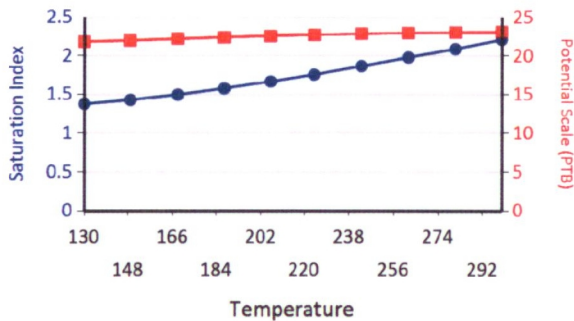
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.31	10.93	0.03	2.64	12.29	1.49	13.40	8.87	1.56
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.31	10.49	0.03	3.36	13.87	1.87	16.17	9.30	1.56
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	0.32	10.10	0.03	4.11	15.00	2.29	19.13	9.79	1.56
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.32	9.75	0.03	4.86	15.67	2.71	21.70	10.29	1.56
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04	0.32	9.45	0.03	5.60	16.04	3.13	23.67	10.80	1.56
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	0.32	9.17	0.03	6.34	16.25	3.55	24.89	11.32	1.56
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.32	8.93	0.03	7.05	16.35	3.97	25.46	11.84	1.56
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.32	8.71	0.03	7.75	16.41	4.38	25.67	12.36	1.56
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.32	8.52	0.03	8.43	16.45	4.79	25.73	12.87	1.56
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	0.32	8.35	0.03	9.08	16.46	5.18	25.75	13.37	1.56

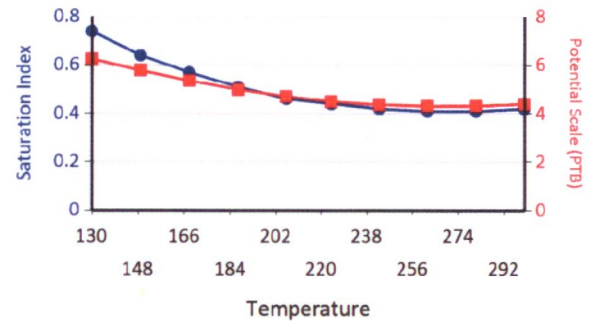
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

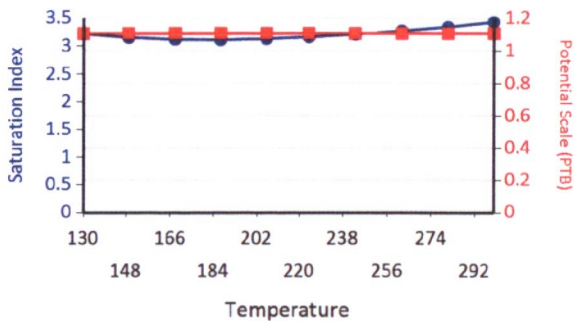
Calcium Carbonate



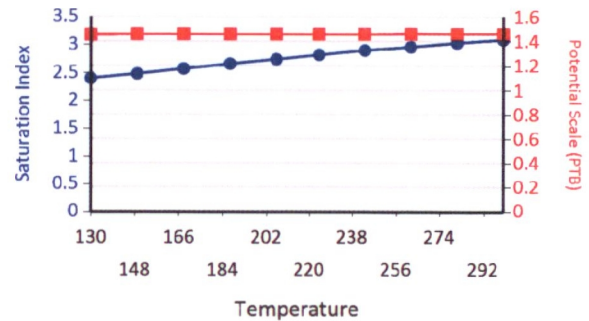
Barium Sulfate



Iron Sulfide

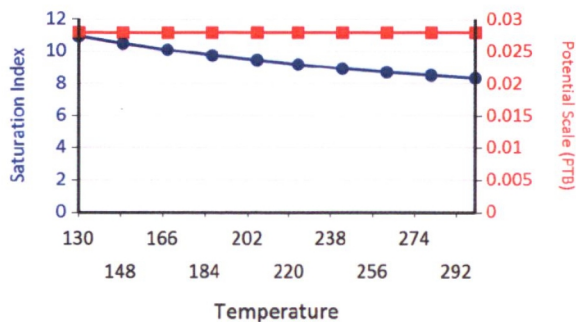


Iron Carbonate

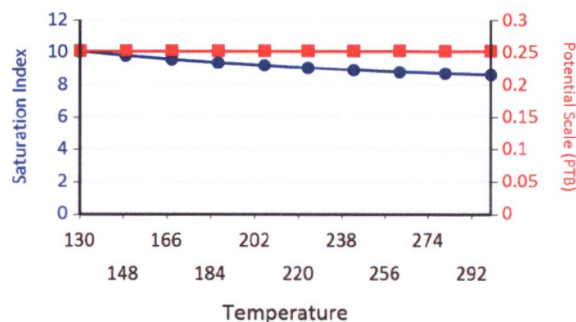


Water Analysis Report

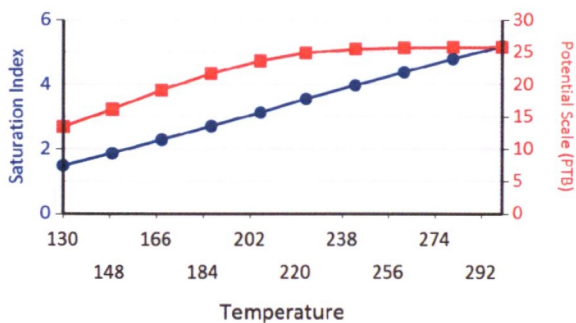
Lead Sulfide



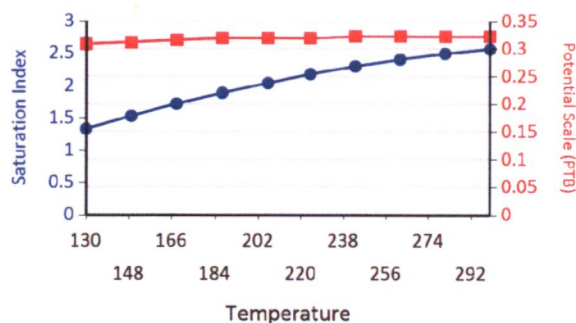
Zinc Sulfide



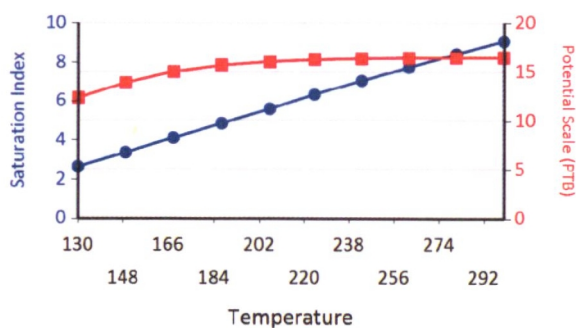
Ca Mg Silicate



Zinc Carbonate

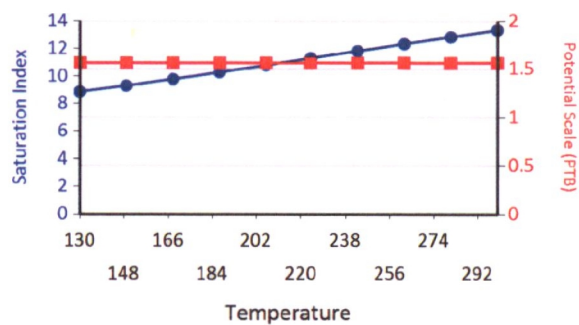


Mg Silicate



Water Analysis Report

Fe Silicate





RECEIVED

JAN 11 2017

Office of Enforcement, Compliance
and Environmental Justice (Water)

January 4, 2017

Gary Wang or Don Breffle
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: 5-year Mechanical Integrity Tests
(Ute Tribal 07-15, 15-12, 19-16, 20-14, 29-04)

Mr. Wang/ Mr. Breffle:

Please find enclosed 5-year Mechanical Integrity Tests for the following wells:

- Ute Tribal 07-15 UT 20736-07414
- Ute Tribal 15-12 UT 20736-04640
- Ute Tribal 19-16 UT 20736-07113
- Ute Tribal 20-14 UT 20736-04540
- Ute Tribal 29-04 UT 20736-06482

If any questions, please reach me at (208) 685-9711.

Best Regards,

Nicole Colby
Manager, Land & Regulatory Compliance

U2 Entered

Date

Initial

1/11/17
DB

	GREEN	BLUE	CBI
TAB		2	

PETROGLYPH ENERGY, INC.

Mechanical Integrity Test Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 12 12 1996
Test conducted by: CHAD STEVENSON
Others present: _____

Well Name: <u>29-04</u>	Type: ER SWD	Status: AC TA UC
Field: <u>ANNELOPE CREEK</u>		
Location: <u>29-04</u> Sec: _____ T _____ N S R _____ E/W	County: <u>DUCHENE</u> State: <u>UT</u>	
Operator: <u>PETROLEUM ENGINEERS</u>		
Last MIT: <u>1</u> <u>1</u>	Maximum Allowable Pressure: _____ PSIG	

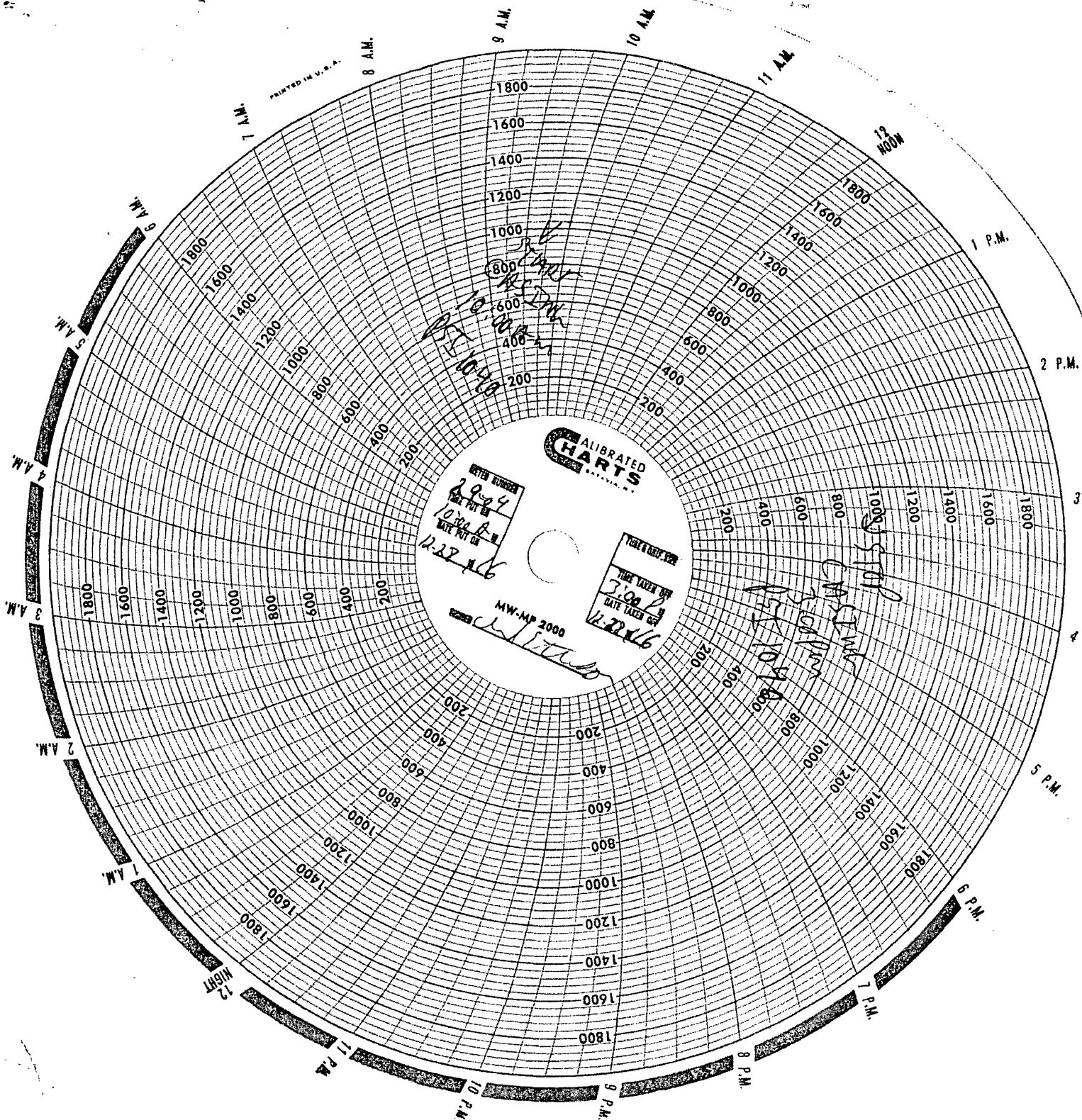
Regularly scheduled test? ☒ Yes ☐ No
Initial test for permit? ☐ Yes ☐ No
Test after well rework? ☐ Yes ☐ No

Well injecting during test? If Yes, rate: _____ bpd
Pre-test annulus pressure: _____ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING	PRESSURE RECORD		
Initial Pressure	480 psig	psig	psig
End of test pressure	480 psig	psig	psig
CASING / TUBING ANNULUS	PRESSURE RECORD		
0 minutes	1040 psig	psig	psig
5 minutes	1040 psig	psig	psig
10 minutes	1040 psig	psig	psig
15 minutes	1040 psig	psig	psig
20 minutes	1040 psig	psig	psig
25 minutes	1040 psig	psig	psig
30 minutes	1040 psig	psig	psig
_____ minutes	1040 psig	psig	psig
5 <u>Hours</u> minutes	psig	psig	psig
RESULT	[] Pass [] Fail	[] Pass [] Fail	[] Pass [] Fail

Does the annulus pressure build back up after the test? If Yes, _____ psig.

PRINTED IN U.S.A.





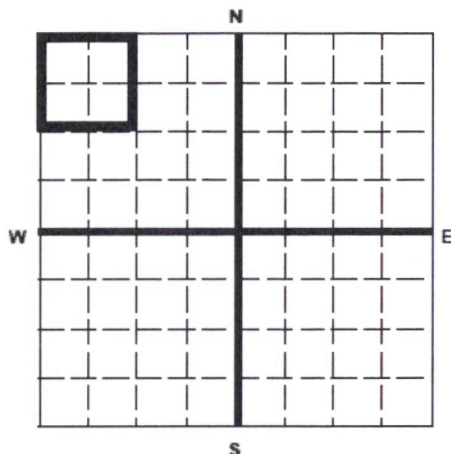
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
Utah

County
Duchesne

Permit Number
UT2736-04434 06482

Surface Location Description
1/4 of 1/4 of NW 1/4 of NW 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface
Location 660 ft. from (N/S) N Line of quarter section
and 660 ft. from (E/W) W Line of quarter section.

U2 Entered

Date 3/2/16

Initial 13

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area
Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 29-04

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING - CASING ANNULUS PRESSURE (OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	959	965	0		0	0
February	15	945	957	0		0	0
March	15	934	942	0		0	0
April	15	875	894	0		0	0
May	15	878	892	0		0	0
June	15	884	900	0		0	0
July	15	870	881	0		0	0
August	15	860	875	0		0	0
September	15	842	863	0		0	0
October	15	846	878	0		0	0
November	15	841	861	0		0	0
December	15	807	835	0		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

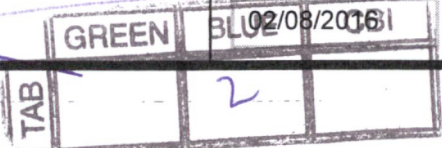
Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

02/08/2016



Units of Measurement: Standard

Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Sales Rep: James Patry

Well Name: UTE TRIBAL 29-04 INJ, DUCHESNE

Lab Tech: Michele Pike

Sample Point: Well Head

Sample Date: 1/6/2016

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample ID: WA-327649

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/13/2016	Sodium (Na):	2578.14	Chloride (Cl):	3500.00
System Temperature 1 (°F):	60	Potassium (K):	14.44	Sulfate (SO ₄):	280.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	32.64	Bicarbonate (HCO ₃):	1830.00
System Temperature 2 (°F):	180	Calcium (Ca):	176.07	Carbonate (CO ₃):	
System Pressure 2 (psig):	50	Strontium (Sr):	5.33	Acetic Acid (CH ₃ COO)	
Calculated Density (g/ml):	1.0035	Barium (Ba):	22.26	Propionic Acid (C ₂ H ₅ COO)	
pH:	7.70	Iron (Fe):	262.75	Butanoic Acid (C ₃ H ₇ COO)	
Calculated TDS (mg/L):	8751.70	Zinc (Zn):	19.99	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
CO ₂ in Gas (%):		Lead (Pb):	0.86	Fluoride (F):	
Dissolved CO ₂ (mg/L):	160.00	Ammonia NH ₃ :		Bromine (Br):	
H ₂ S in Gas (%):		Manganese (Mn):	2.29	Silica (SiO ₂):	26.93
H ₂ S in Water (mg/L):	10.00	Aluminum (Al):	2.18	Calcium Carbonate (CaCO ₃):	
Tot. Suspended Solids (mg/L):		Lithium (Li):	18.19	Phosphates (PO ₄):	10.47
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	1.32	Oxygen (O ₂):	
Alkalinity:		Silicon (Si):	12.59		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.86	140.20	1.87	13.07	4.77	9.12	4.24	190.97	0.00	0.00	0.00	0.00	0.00	0.00	10.66	10.11
167.00	267.00	1.72	134.60	1.89	13.08	4.69	9.12	4.08	190.91	0.00	0.00	0.00	0.00	0.00	0.00	10.71	10.11
153.00	483.00	1.62	130.33	1.92	13.09	4.67	9.12	3.96	190.86	0.00	0.00	0.00	0.00	0.00	0.00	10.82	10.11
140.00	700.00	1.53	125.63	1.96	13.11	4.65	9.12	3.84	190.79	0.00	0.00	0.00	0.00	0.00	0.00	10.95	10.11
127.00	917.00	1.45	120.62	2.02	13.13	4.65	9.12	3.72	190.70	0.00	0.00	0.00	0.00	0.00	0.00	11.09	10.11
113.00	1133.00	1.37	115.41	2.08	13.14	4.66	9.12	3.60	190.58	0.00	0.00	0.00	0.00	0.00	0.00	11.25	10.11
100.00	1350.00	1.29	110.13	2.16	13.16	4.69	9.12	3.49	190.43	0.00	0.00	0.00	0.00	0.00	0.00	11.43	10.11
87.00	1567.00	1.22	104.92	2.26	13.18	4.73	9.12	3.37	190.22	0.00	0.00	0.00	0.00	0.00	0.00	11.63	10.11
73.00	1783.00	1.16	99.91	2.37	13.20	4.80	9.12	3.26	189.96	0.00	0.00	0.00	0.00	0.00	0.00	11.85	10.11
60.00	2000.00	1.11	95.22	2.49	13.21	4.88	9.12	3.15	189.62	0.00	0.00	0.00	0.00	0.00	0.00	12.09	10.11

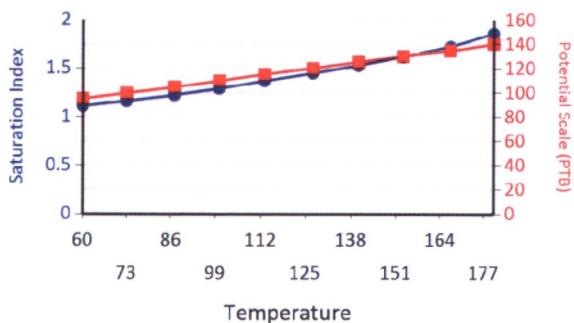
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	13.42	10.57	0.35	3.63	37.74	2.16	24.51	13.70	62.47
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	13.41	10.73	0.35	2.63	27.19	1.54	17.81	12.86	62.47
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61	13.40	10.95	0.35	1.86	19.16	1.08	12.60	12.27	62.47
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	13.38	11.20	0.35	1.10	11.13	0.63	7.30	11.69	62.47
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.23	13.34	11.47	0.35	0.34	3.41	0.18	2.16	11.12	62.46
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02	13.28	11.77	0.35	0.00	0.00	0.00	0.00	10.56	62.45
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	13.18	12.09	0.35	0.00	0.00	0.00	0.00	10.02	62.42
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	13.00	12.45	0.35	0.00	0.00	0.00	0.00	9.49	62.38
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	12.68	12.84	0.35	0.00	0.00	0.00	0.00	8.97	62.29
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	12.10	13.27	0.35	0.00	0.00	0.00	0.00	8.48	62.13

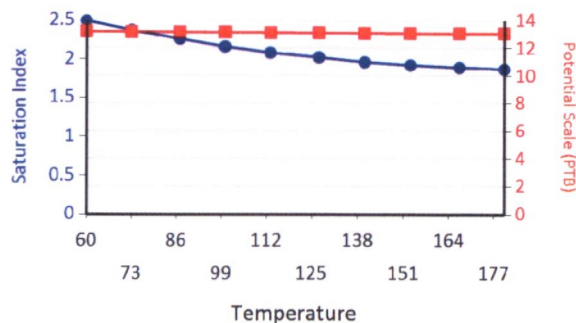
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Fe Silicate

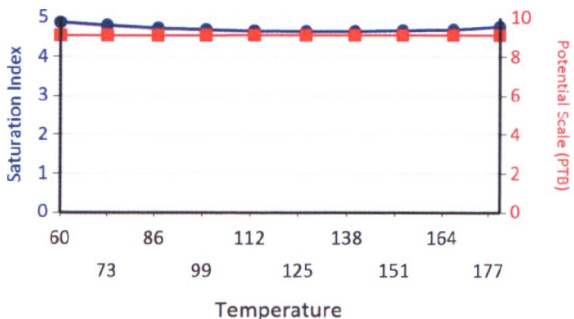
Calcium Carbonate



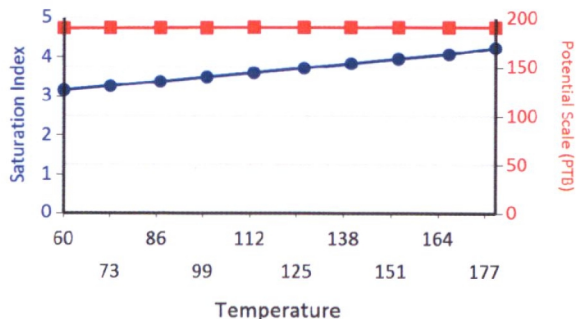
Barium Sulfate



Iron Sulfide

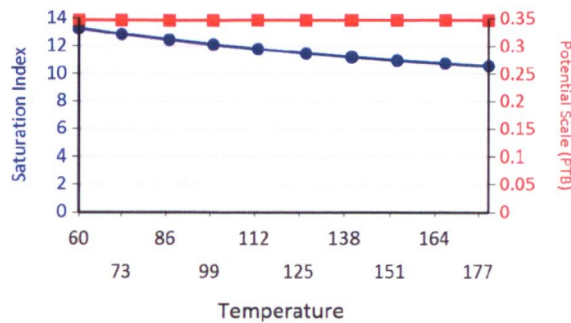


Iron Carbonate

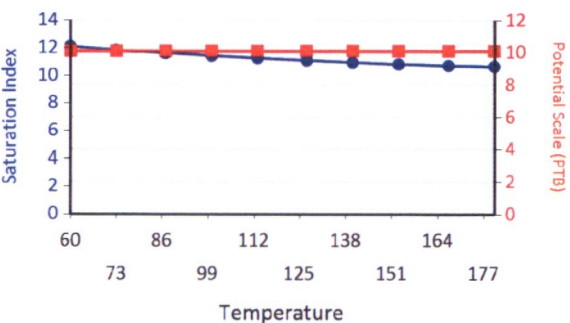


Water Analysis Report

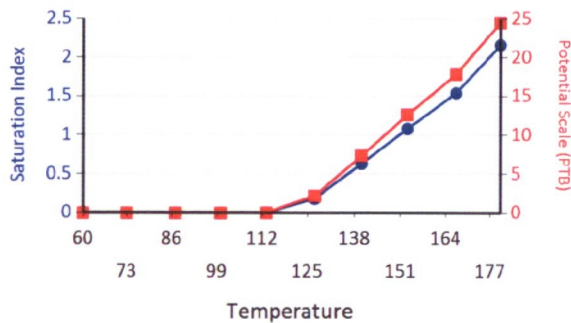
Lead Sulfide



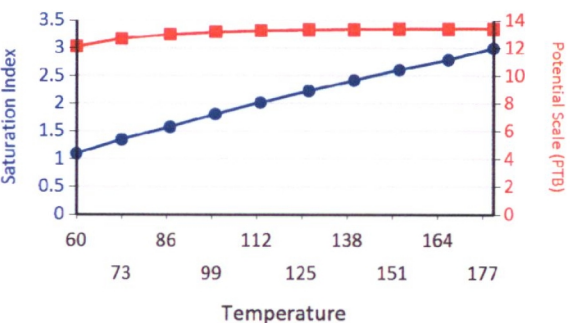
Zinc Sulfide



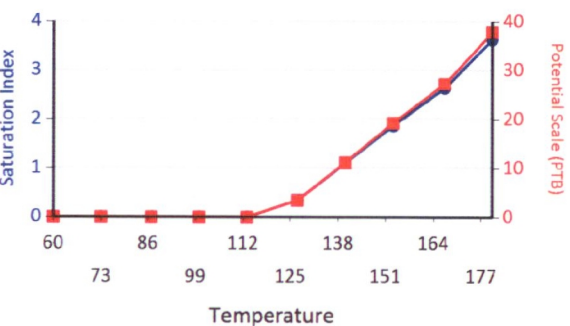
Ca Mg Silicate



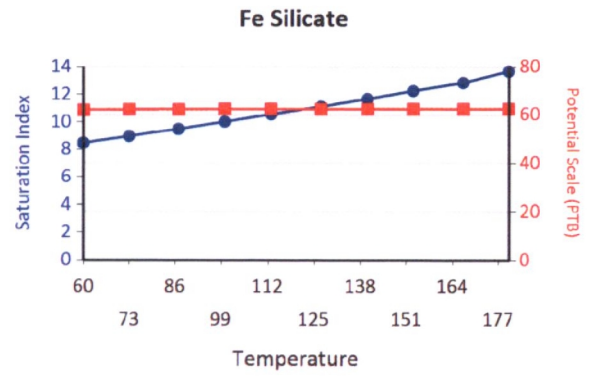
Zinc Carbonate



Mg Silicate



Water Analysis Report





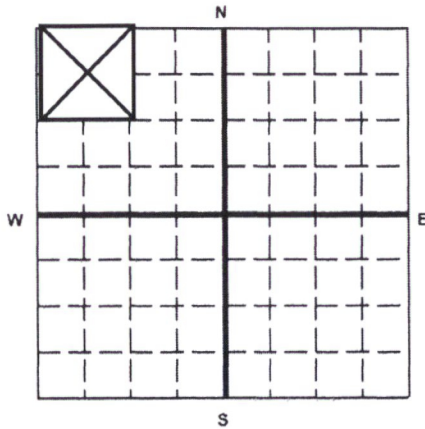
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State
Utah

County
Duchesne

Permit Number
UT2736-06482

Surface Location Description

1/4 of 1/4 of NW 1/4 of NW 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 660 ft. from (N/S) N Line of quarter section
and 660 ft. from (E/W) W Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 29-04

TUBING -- CASING ANNULUS PRESSURE
(OPTIONAL MONITORING)

		INJECTION PRESSURE		TOTAL VOLUME INJECTED			
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	582	595	0		0	0
February	14	592	603	0		0	0
March	14	468	606	0		0	0
April	14	28	55	0		0	0
May	14	15	45	0		0	0
June	14	9	27	0		0	0
July	14	935	1211	0		0	0
August	14	1043	1059	0		0	0
September	14	989	1044	0		0	0
October	14	1014	1034	0		0	0
November	14	992	1010	0		0	0
December	14	974	999	0		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/10/2015

U2 Entered

Date

3/25/15

Initial

UW

	GREEN	BLUE	CBI
TAB		2	

Multi-Chem Analytical Laboratory

1553 East Highway 40

Vernal, UT 84078

Units of Measurement: Standard

multi-chem®

A HALLIBURTON SERVICE

Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Sales Rep: James Patry

Well Name: UTE TRIBAL 29-04 INJ, DUCHESNE

Lab Tech: Gary Winegar

Sample Point: WELLHEAD

Sample Date: 1/7/2015

Sample ID: WA-297538

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/14/2015	Cations		Anions	
		mg/L		mg/L	
System Temperature 1 (°F):	160	Sodium (Na):	2837.65	Chloride (Cl):	4000.00
System Pressure 1 (psig):	1300	Potassium (K):	43.47	Sulfate (SO ₄):	105.00
System Temperature 2 (°F):	80	Magnesium (Mg):	22.29	Bicarbonate (HCO ₃):	3074.00
System Pressure 2 (psig):	15	Calcium (Ca):	40.65	Carbonate (CO ₃):	
Calculated Density (g/ml):	1.0040	Strontium (Sr):	5.28	Acetic Acid (CH ₃ COO)	
pH:	8.50	Barium (Ba):	10.18	Propionic Acid (C ₂ H ₅ COO)	
Calculated TDS (mg/L):	10164.79	Iron (Fe):	0.27	Butanoic Acid (C ₄ H ₇ COO)	
CO ₂ in Gas (%):		Zinc (Zn):	0.05	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
Dissolved CO ₂ (mg/L):	0.00	Lead (Pb):	0.00	Fluoride (F):	
H ₂ S in Gas (%):		Ammonia NH ₃ :		Bromine (Br):	
H ₂ S in Water (mg/L):	30.00	Manganese (Mn):	0.16	Silica (SiO ₂):	25.79

Notes:

B=6.14 Al=.05 Li=1.37

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.79	34.63	1.70	5.93	3.35	0.15	1.57	0.19	0.00	0.00	0.00	0.00	0.00	0.00	10.62	0.02
88.00	157.00	1.79	34.61	1.61	5.91	3.27	0.15	1.61	0.19	0.00	0.00	0.00	0.00	0.00	0.00	10.43	0.02
97.00	300.00	1.80	34.64	1.54	5.87	3.21	0.15	1.65	0.19	0.00	0.00	0.00	0.00	0.00	0.00	10.27	0.02
106.00	443.00	1.82	34.68	1.47	5.84	3.16	0.15	1.69	0.19	0.00	0.00	0.00	0.00	0.00	0.00	10.11	0.02
115.00	585.00	1.84	34.72	1.40	5.81	3.11	0.15	1.74	0.19	0.00	0.00	0.00	0.00	0.00	0.00	9.97	0.02
124.00	728.00	1.85	34.76	1.34	5.77	3.07	0.15	1.78	0.19	0.00	0.00	0.00	0.00	0.00	0.00	9.83	0.02
133.00	871.00	1.88	34.81	1.29	5.73	3.04	0.15	1.82	0.19	0.00	0.00	0.00	0.00	0.00	0.00	9.70	0.02
142.00	1014.00	1.90	34.85	1.24	5.69	3.02	0.15	1.86	0.19	0.00	0.00	0.00	0.00	0.00	0.00	9.58	0.02
151.00	1157.00	1.92	34.90	1.20	5.65	3.00	0.15	1.90	0.19	0.00	0.00	0.00	0.00	0.00	0.00	9.47	0.02
160.00	1300.00	1.95	34.94	1.16	5.62	2.99	0.15	1.94	0.19	0.00	0.00	0.00	0.00	0.00	0.00	9.36	0.02

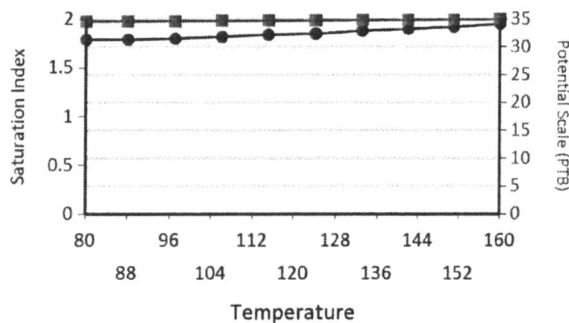
		Hemihydrate CaSO ₄ ·0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	17.11	0.96	8.13	5.42	0.21
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.00	0.00	2.39	18.67	1.10	8.93	5.55	0.21
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.01	0.00	0.00	2.75	20.73	1.29	10.00	5.75	0.21
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.02	0.00	0.00	3.12	22.62	1.48	10.98	5.96	0.21
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.02	0.00	0.00	3.50	24.34	1.68	11.87	6.17	0.21
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.02	0.00	0.00	3.87	25.87	1.89	12.67	6.40	0.21
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.02	0.00	0.00	4.25	27.18	2.09	13.36	6.64	0.21
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.03	0.00	0.00	4.63	28.28	2.30	13.94	6.88	0.21
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.03	0.00	0.00	5.01	29.15	2.51	14.43	7.13	0.21
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.03	0.00	0.00	5.40	29.83	2.72	14.83	7.38	0.21

Water Analysis Report

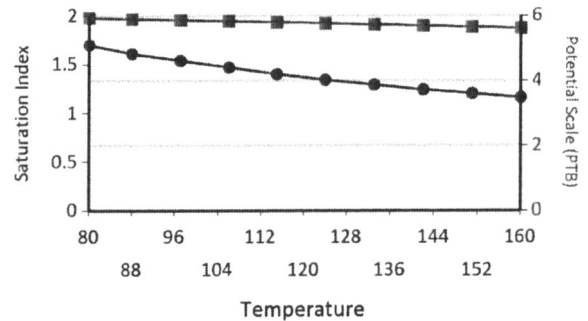
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

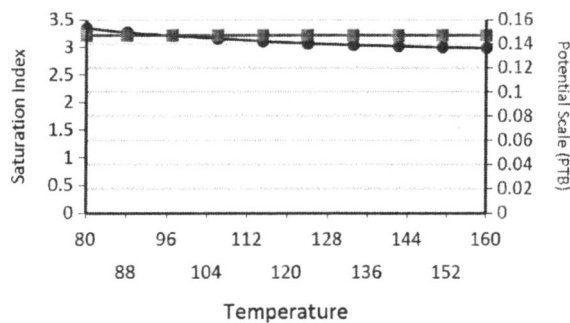
Calcium Carbonate



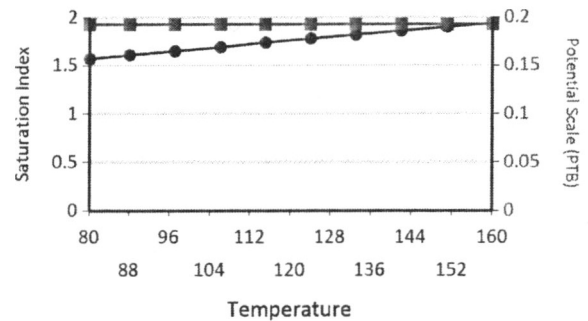
Barium Sulfate



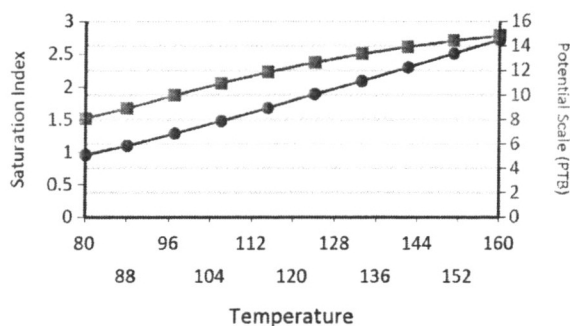
Iron Sulfide



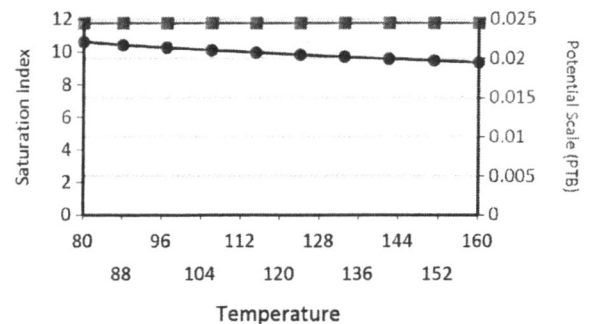
Iron Carbonate



Ca Mg Silicate

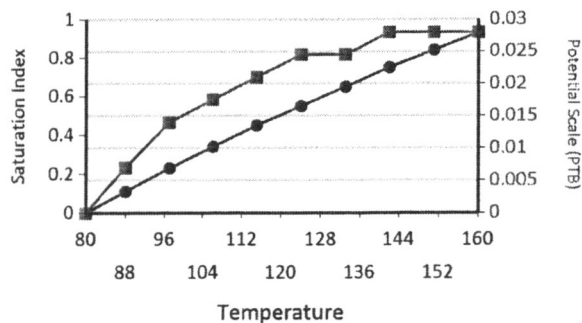


Zinc Sulfide

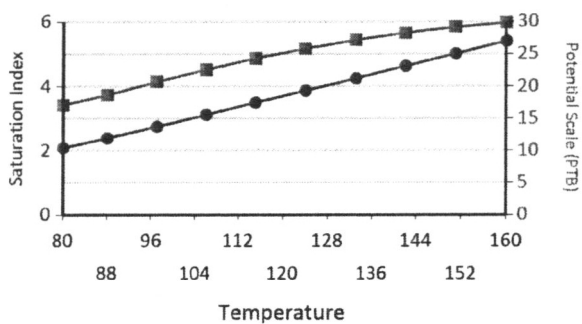


Water Analysis Report

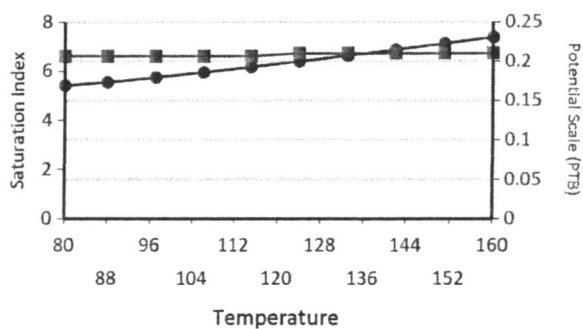
Zinc Carbonate



Mg Silicate



Fe Silicate





United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

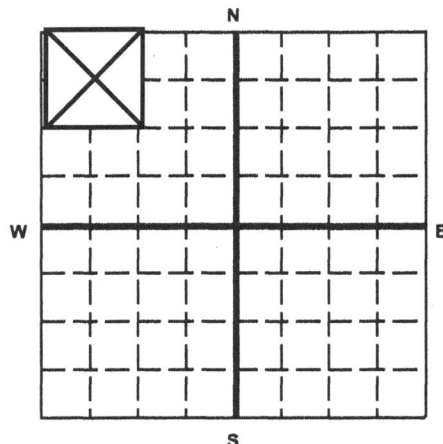
Name and Address of Existing Permittee

Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner

Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on
Section Plat - 640 Acres



State

Utah

County

Duchesne

Permit Number

UT2736-06482

Surface Location Description

☐ 1/4 of ☐ 1/4 of ☐ NW 1/4 of ☐ NW 1/4 of Section Township Range

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location ft. from (N/S) Line of quarter section
and ft. from (E/W) Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☒ Enhanced Recovery
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual
☒ Area

Number of Wells

Lease Name

Well Number

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	<input type="text" value="1449"/>	<input type="text" value="1620"/>	<input type="text" value="10"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
February	13	<input type="text" value="410"/>	<input type="text" value="645"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
March	13	<input type="text" value="74"/>	<input type="text" value="38"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
April	13	<input type="text" value="3"/>	<input type="text" value="5"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
May	13	<input type="text" value="47"/>	<input type="text" value="106"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
June	13	<input type="text" value="200"/>	<input type="text" value="300"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
July	13	<input type="text" value="581"/>	<input type="text" value="649"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
August	13	<input type="text" value="562"/>	<input type="text" value="651"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
September	13	<input type="text" value="548"/>	<input type="text" value="554"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
October	13	<input type="text" value="570"/>	<input type="text" value="592"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
November	13	<input type="text" value="577"/>	<input type="text" value="583"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
December	13	<input type="text" value="572"/>	<input type="text" value="583"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

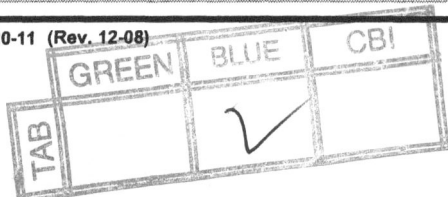
Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/11/2014



U2 Entered

Date

3/21/14

Initial

BS

Multi-Chem Analytical Laboratory

1553 East Highway 40

Vernal, UT 84078

Units of Measurement: **Standard**multi-chem[®]

A HALLIBURTON SERVICE

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**Well Name: **UTE TRIBAL 29-04 INJ**Sample Point: **Wellhead**Sample Date: **1/8/2014**Sample ID: **WA-263024**Sales Rep: **James Patry**Lab Tech: **Gary Winegar**Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations		Anions	
Test Date:	1/15/2014	mg/L		mg/L	
System Temperature 1 (°F):	180	Sodium (Na):	2246.53	Chloride (Cl):	3000.00
System Pressure 1 (psig):	1300	Potassium (K):	12.00	Sulfate (SO ₄):	34.00
System Temperature 2 (°F):	60	Magnesium (Mg):	12.00	Bicarbonate (HCO ₃):	927.00
System Pressure 2 (psig):	15	Calcium (Ca):	22.00	Carbonate (CO ₃):	
Calculated Density (g/ml):	1.002	Strontium (Sr):	3.00	Acetic Acid (CH ₃ COO)	
pH:	8.40	Barium (Ba):	7.00	Propionic Acid (C ₂ H ₅ COO)	
Calculated TDS (mg/L):	6277.13	Iron (Fe):	6.00	Butanoic Acid (C ₃ H ₇ COO)	
CO ₂ in Gas (%):		Zinc (Zn):	0.39	Isobutyric Acid ((CH ₃) ₂ CHCOO)	
Dissolved CO ₂ (mg/L):	80.00	Lead (Pb):	0.06	Fluoride (F):	
H ₂ S in Gas (%):		Ammonia NH ₃ :		Bromine (Br):	
H ₂ S in Water (mg/L):	0.00	Manganese (Mn):	0.30	Silica (SiO ₂):	6.85

Notes:

B=1.4 Al=0 Li=.31

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.90	13.30	1.41	3.99	0.00	0.00	2.07	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	0.90	13.24	1.27	3.91	0.00	0.00	2.13	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	0.93	13.57	1.14	3.82	0.00	0.00	2.21	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	0.96	13.95	1.03	3.72	0.00	0.00	2.28	4.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	0.99	14.35	0.93	3.61	0.00	0.00	2.35	4.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.03	14.78	0.85	3.50	0.00	0.00	2.43	4.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.07	15.22	0.78	3.38	0.00	0.00	2.50	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.11	15.66	0.72	3.27	0.00	0.00	2.56	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.16	16.08	0.67	3.17	0.00	0.00	2.63	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.21	16.49	0.63	3.08	0.00	0.00	2.69	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

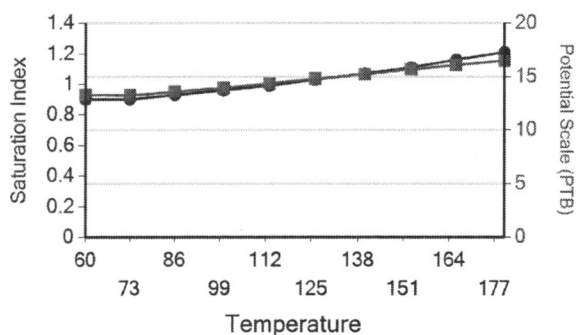
Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO ₄ ·0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	6.78	4.55
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.11	0.00	0.00	0.00	0.00	0.00	0.00	6.98	4.57
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.17	0.00	0.00	0.00	0.00	0.00	0.00	7.29	4.59
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.20	0.00	0.00	0.35	1.11	0.00	0.00	7.62	4.61
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.22	0.00	0.00	0.93	2.61	0.00	0.00	7.98	4.62
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.23	0.00	0.00	1.51	3.99	0.00	0.00	8.35	4.63
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.24	0.00	0.00	2.10	5.23	0.23	0.78	8.74	4.64
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.25	0.00	0.00	2.69	6.27	0.56	1.55	9.13	4.65
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.25	0.00	0.00	3.27	7.07	0.89	2.22	9.53	4.65
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.26	0.00	0.00	3.84	7.62	1.21	2.77	9.93	4.66

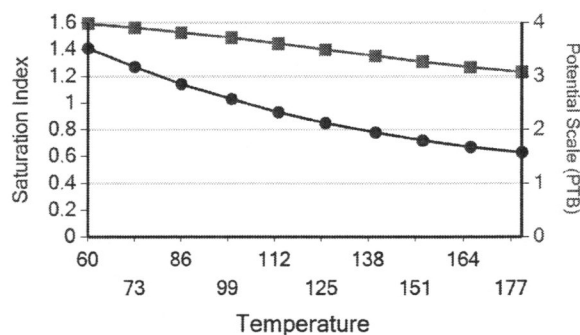
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

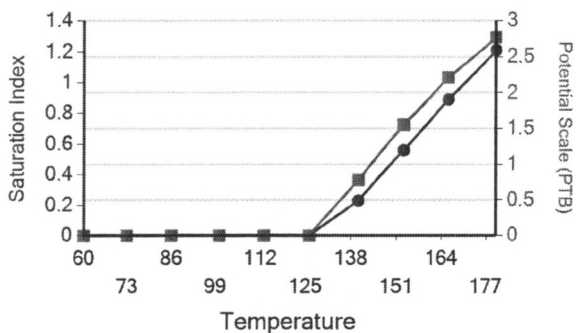
Calcium Carbonate



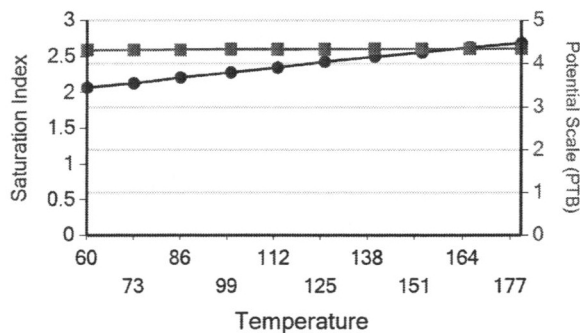
Barium Sulfate



Ca Mg Silicate

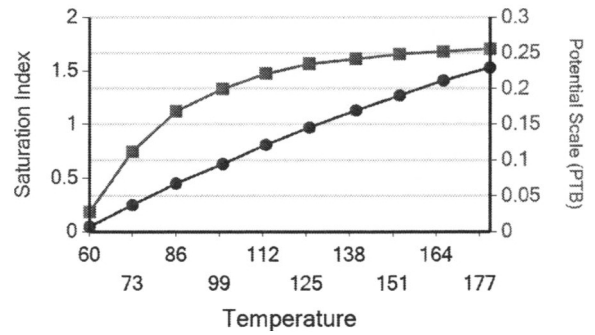


Iron Carbonate

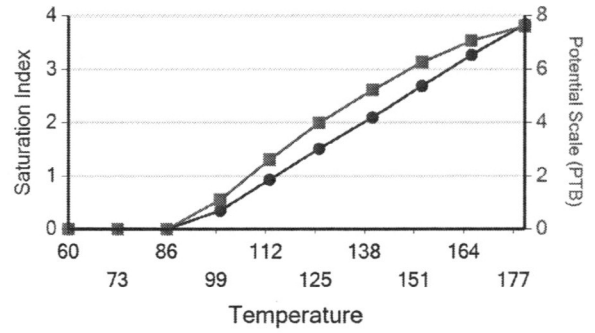


Water Analysis Report

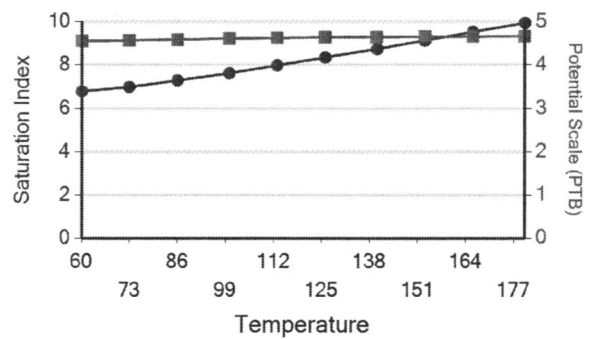
Zinc Carbonate



Mg Silicate



Fe Silicate





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
<http://www.epa.gov/region08>

AUTHORIZATION FOR ADDITIONAL WELL

UIC Area Permit No: UT20736-00000

The Antelope Creek Waterflood Final UIC Area Permit No. UT20736-00000, effective July 12, 1994, authorizes injection for the purpose of enhanced oil recovery into multiple lenticular sand units which are distributed throughout the lower portion of the Green River Formation. On October 12, 2004, the permittee provided notice to the Director concerning the following additional enhanced recovery injection well:

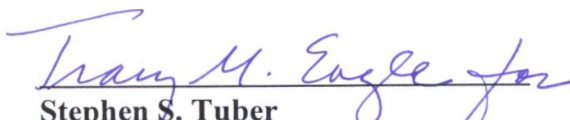
Well Name:	<u>Ute Tribal 29-04</u>
EPA Well ID Number:	<u>UT20736-06482</u>
Location:	660 ft FNL & 660 ft FWL NWNW Sec. 29 - T5S - R3W Duchesne County, Utah.

Pursuant to 40 CFR §144.33, Area UIC Permit No. UT20736-00000 authorizes the permittee to construct and operate, convert, or plug and abandon additional enhanced recovery injection wells within the area permit. This well was determined to satisfy additional well criteria required by the permit.

This well is subject to all provisions of UIC Area Permit No. UT20736-00000, as modified, and as specified in the Well Specific Requirements detailed below. This Authorization shall expire one year after the Effective Date unless the permittee has converted the well to injection or submits a written request to extend this Authorization prior to the expiration date..

This Authorization is effective upon signature.

Date: 6/7/05


Stephen S. Tuber
*Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

** The person holding this title is referred to as the Director throughout the Permit and Authorization*



WELL-SPECIFIC REQUIREMENTS

Well Name: **Ute Tribal 29-04**
EPA Well ID Number: **UT20736-06482**

Prior to Beginning Injection: Prior to commencing injection operations, the permittee shall submit the following information and receive written Authority to Inject from the Director:

1. a successful Part I (Internal) Mechanical Integrity test (MIT);
2. pore pressure calculation of the proposed injection zone; and
3. completed Well Rework Record EPA Form No. 7520-12 and schematic diagram.

Approved Injection Zone: Injection is approved between the base of the Green River A-Lime Marker at 4005 ft to the top of the Basal Carbonate at 6007 ft.

Maximum Allowable Injection Pressure (MAIP): The initial MAIP is **1655 psig**, based on the following calculation:

$$\begin{aligned}\text{MAIP} &= [\text{FG} - (0.433)(\text{SG})] * \text{D}, \text{ where} \\ \text{FG} &= 0.80 \text{ psi/ft} \quad \text{SG} = 1.01 \quad \text{D} = 4574 \text{ ft (top perforation depth KB)} \\ \text{MAIP} &= \mathbf{1655 \text{ psi}}\end{aligned}$$

UIC Area Permit No. UT20736-00000 also provides the opportunity for the permittee to request a change of the MAIP based upon results of a step rate test that demonstrates the formation breakdown pressure will not be exceeded.

Well Construction and Corrective Action: **No Corrective Action is required** Based on review of well construction and cementing Records, including a CBL, well construction is considered adequate to prevent fluid movement out of the injection zone and into USDWs.

Tubing and Packer: **2-3/8" or similar sized injection tubing is approved; the packer shall be set at a depth no more than 100 ft above the top perforation.**

Corrective Action for Wells in Area of Review: **No Corrective Action is required.** The following wells that penetrate the confining zone are within or proximate to a 1/4 mile radius around the Ute Tribal No. 29-04 were evaluated to determine if any corrective action is necessary to prevent fluid movement into USDWs:

Well: Ute Tribal No. 20-13Q	Location: SW SW Sec. 20-T5S-R3W
Well: Ute Tribal No. 20-14N	Location: SW SE Sec. 20-T5S-R3W
Well: Ute Tribal No. 30-01A	Location: NE NE Sec. 30-T5S-R3W
Well: Ute Tribal No. 29-06E	Location: SW NW Sec. 29-T5S-R3W

Demonstration of Mechanical Integrity: A successful demonstration of Part I (Internal) Mechanical Integrity using a standard Casing-Tubing pressure test is required prior to injection and at least once every five years thereafter. EPA reviewed the cementing records and

determined the cement will provide an effective barrier to significant upward movement of fluids through vertical channels adjacent to the well bore pursuant to 40 CFR 146.8 (a)(2). Therefore, further demonstration of Part II (External) Mechanical Integrity is not required at this time.

Demonstration of Financial Responsibility: The applicant has demonstrated financial responsibility in the amount of \$15,000 via a Surety Bond that has been reviewed and approved by the EPA.

Plugging and Abandonment: The well shall be plugged in a manner that isolates the injection zone and prevents movement of fluids into or between USDWs. Tubing, packers, and any downhole apparatus shall be removed. Class A, C, G, and H cements, with additives such as accelerators and retarders that control or enhance cement properties, may be used for plugs; however, volume extending additives and gel cements are not approved for plug use. Plug placement shall be verified by tagging. Plugging gel of at least 9.2 lb/gal shall be placed between all plugs. A minimum 50 ft surface plug shall be set inside and outside of the surface casing to seal pathways for fluid migration into the subsurface. Within sixty (60) days after plugging the owner or operator shall submit Plugging Record (EPA Form 7520-13) to the Director. The Plugging Record must be certified as accurate and complete by the person responsible for the plugging operation. At a minimum the following plugs shall be emplaced:

PLUG NO. 1: Set a cast iron bridge plug (CIBP) 50-100 ft above the top perforation at 4574 ft with a minimum 20 ft cement plug on top of the CIBP.

PLUG NO. 2: Set a minimum 150 ft cement plug inside of the 5-1/2" casing from at least 2850 ft to at least 3000 ft across the Mahogany Shale.

PLUG NO. 3: Set a minimum 50 ft cement plug on the backside of the 5-1/2" casing, across the surface casing shoe at 400 ft and the base of USDWs at 440 ft.

PLUG NO. 4: Set a cement plug inside of the 5-1/2" casing from at least 350 ft to 450 ft.

PLUG NO. 5: Set a cement plug, on the backside of the 5-1/2" casing, from surface to a depth of at least 50 ft.

PLUG NO. 6: Set a cement plug inside of the 5-1/2" casing from surface to a depth of at least 50 ft.

Cut off surface and 5-1/2" casing at least 4 ft below ground level and set P&A marker; submit Sundry Notices and all necessary data as required by the EPA and other regulatory agencies.

Reporting of Noncompliance:

- (a) Anticipated Noncompliance. The operator shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (b) Compliance Schedules. Reports of compliance or noncompliance with, or any

progress on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than thirty (30) days following each schedule date.

- (c) Written Notice of any noncompliance which may endanger health or the environment shall be reported to the Director within five (5) days of the time the operator becomes aware of the noncompliance. The written notice shall contain a description of the noncompliance and its cause; the period of noncompliance including dates and times; if the noncompliance has not been corrected the anticipated time it is expected to continue; and steps taken or planned to prevent or reduce recurrence of the noncompliance.

Twenty-Four Hour Noncompliance Reporting:

The operator shall report to the Director any noncompliance which may endanger health or environment. Information shall be provided, either orally or by leaving a message, within twenty-four (24) hours from the time the operator becomes aware of the circumstances by telephoning 1.800.227-8917 and asking for the EPA Region 8 UIC Program Compliance and Enforcement Director, or by contacting the Region 8 Emergency Operations Center at 303.293.1788 if calling from outside EPA Region 8. The following information shall be included in the verbal report:

- (a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW.
- (b) Any noncompliance with a Permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

Oil Spill and Chemical Release Reporting:

The operator shall comply with all other reporting requirements related to oil spills and chemical releases or other potential impacts to human health or the environment by contacting the **National Response Center (NRC) 1.800.424.8802 or 202.267.2675**, or through the **NRC website at <http://www.nrc.uscg.mil/index.htm>**.

Other Noncompliance:

The operator shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted.

Other Information:

Where the operator becomes aware that he failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application, or in any report to the Director, the operator shall submit such correct facts or information within two (2) weeks of the time such information became known to him.

WELL-SPECIFIC INFORMATION

Well Name: Ute Tribal 29-04
EPA Well ID Number: UT20736-06482

Underground Sources of Drinking Water (USDWs): USDWs in the Antelope Creek Waterflood area generally occur within the Uinta Formation which extends from the surface to approximately 1410 ft. According to "*Base of Moderately Saline Ground Water in the Uinta Basin, Utah, State of Utah Technical Publication No. 92,*" the base of moderately saline ground water is found at approximately 440 ft below ground surface at this well location.

Confining Zone: The Confining Zone at this well location, based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log, is approximately 205 ft of interbedded limestone and shale that directly overlies the top of the Injection Zone between the depths (KB) of 3800 to 4005 ft. Additional impermeable lacustrine shale beds above the Confining Zone provide for further protection for any overlying USDW.

Injection Zone: The Injection Zone at this well location, based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log, is an approximately 2100 ft section of multiple lenticular sand units interbedded with shale, marlstone and limestone, from the base of the Green River A Lime Marker at 4005 ft (KB) to the top of the Basal Carbonate Formation at 6007 ft (KB).

Well Construction: The CBL shows more than 250 ft of 80% or greater bond across the confining zone, from approximately 3810 ft to 4108 ft.

Surface casing: 8-5/8" casing is set at 400 ft (KB) in a 12-1/4" hole, using 250 sacks cement circulated to the surface.

Longstring casing: 5-1/2" casing is set at 6638 ft (KB) in a 7-7/8" hole with a plugged back total depth (PBD) of 5675 ft, cemented with 850 sacks 50/50 Pozmix cement.
Top of Cement (TOC): 1550 ft (KB) CBL.

Perforations: top perforation: 4575 ft Bottom perforation: 5242 ft

Wells in Area of Review (AOR): Construction and cementing records, including cement bond logs (CBL) as available, for four wells in the 1/4 mile AOR that penetrated the confining zone were reviewed and found adequate to prevent fluid movement out of the injection zone and into USDWs.

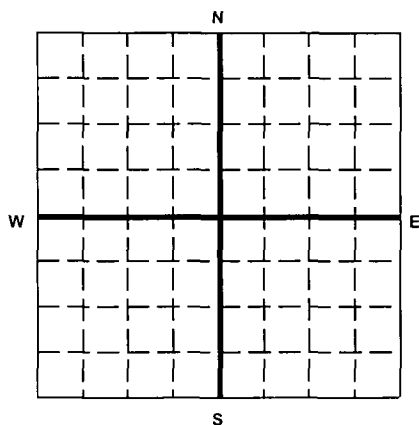
Well: Ute Tribal No. 20-13Q	Top of Cement (TOC):1060 ft (CBL)
Well: Ute Tribal No. 20-14N	TOC: 1368 ft (CBL)
Well: Ute Tribal No. 30-01A	TOC: 880 ft (CBL)
Well: Ute Tribal No. 29-06E	TOC: 1536 ft (CBL)


 United States Environmental Protection Agency
 Washington, DC 20460

WELL REWORK RECORD

Name and Address of Permittee

Name and Address of Contractor

 Locate Well and Outline Unit on
 Section Plat - 640 Acres


State

County

Permit Number

Surface Location Description

☐ 1/4 of ☐ 1/4 of ☐ 1/4 of ☐ 1/4 of Section ☐ Township ☐ Range ☐

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location ☐ ft. from (N/S) ☐ Line of quarter sectionand ☐ ft. from (E/W) ☐ Line of quarter section.

WELL ACTIVITY

- ☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage

Lease Name

Total Depth Before Rework

Total Depth After Rework

Date Rework Commenced

Date Rework Completed

TYPE OF PERMIT

- ☐ Individual
☐ Area

Number of Wells

Well Number

WELL CASING RECORD -- BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD -- AFTER REWORK (Indicate Additions and Changes Only)

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

 DESCRIBE REWORK OPERATIONS IN DETAIL
 USE ADDITIONAL SHEETS IF NECESSARY

WIRE LINE LOGS, LIST EACH TYPE

Log Types

Logged Intervals

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Signature

Date Signed

PAPERWORK REDUCTION ACT

The public reporting and record keeping burden for this collection of information is estimated to average 4 hours per response annually. Burden means the total time, effort, or financial resource expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW., Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8

999 18TH STREET - SUITE 300

DENVER, CO 80202-2466

Phone 800-227-8917

<http://www.epa.gov/region08>

Ref: 8P-W-GW

OCT 5 2005

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

RE: Authorization to Inject
Ute Tribal 29-04
UIC Permit UT20736-06482
Antelope Creek Field, Duchesne County, Utah

Dear Mr. Wall:

Thank you for submitting information pertaining to the newly constructed or converted Ute Tribal 29-04 enhanced recovery injection well to the Region 8 Ground Water Program office of the Environmental Protection Agency (EPA). The "Prior To Commencing Injection" requirements for the Ute Tribal 29-04 injection well required well owner and operator Petroglyph Energy, Inc. to submit the following information to the Director:

1. A successful mechanical integrity test (MIT) demonstrating Part I Internal MI,
2. Pore pressure calculation of the proposed injection zone, and
3. completed EPA Form No. 7520-12.

All required information has been submitted, and has been reviewed and approved by the EPA. Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal 29-04 enhanced recovery injection well under the conditions of the Authorization for Additional Well and UIC Area Permit UT20736-00000 as modified.

As of this approval, responsibility for permit compliance and enforcement is transferred to the Region 8 UIC Technical Enforcement Program office. Therefore, please direct all future notification, reporting, monitoring and compliance correspondence to the following address, referencing your well and UIC Permit number on all correspondence regarding this well.



Technical Enforcement Program - UIC
U.S. EPA Region 8, Mail Code 8ENF-UFO
999 18th Street, Suite 300
Denver, Colorado 80202-2466

The Director has determined that the maximum allowable surface injection pressure (MAIP) for the Ute Tribal 29-04 is **1655** psig. Please be reminded that it is the responsibility of the owner/operator to be aware of, and to comply with, all conditions of Authorization for Additional Well UT20736-06482 and EPA UIC Area Permit UT20736-00000 and relevant modifications as issued.

If you have any questions regarding this Authorization, please call Dan Jackson of my staff at (303) 312-6155. For questions regarding notification, testing, monitoring, reporting or other Permit requirements, the UIC Technical Enforcement Program may be reached by calling (800) 227-8917.

Sincerely,



Tracy M. Eagle
Director
Ground Water Program

cc: Maxine Natchees, Chairperson
Uintah & Ouray Business Committee
Ute Indian Tribe
P.O. Box 190
Fort Duchesne, UT 84026

Chester Mills, Superintendent
BIA - Uintah & Ouray Indian Agency
P.O. Box 130
Fort Duchesne, UT 84026

Mr. Kenneth Smith
Executive Vice President and Chief Operating Officer
Petroglyph Energy, Inc.
555 S. Cole Blvd
Boise, ID 83709

Elaine Willie
Environmental Coordinator
Ute Indian Tribe
P.O. Box 460
Fort Duchesne, UT 84026

Gil Hunt
Technical Services Manager
Utah Division of Oil, Gas, and Mining
1594 West North Temple - Suite 1220
Salt Lake City, UT 84114-5801

Kirk Fleetwood, PE
BLM - Vernal District
170 South 500 East
Vernal, UT 84078

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: UT20736-06482
OCT - 5 2005

Steve Wall
 District Manager
 Petroglyph Energy, Inc
 4116 West 3000 So. Ioka Lane
 Roosevelt, UT 84066

PSW F

2. Article Number
 (Transfer from service label)

7001 0320 0005 9387 8054

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *Dana Jilling* ☐ Agent ☒ Addressee

B. Received by (Printed Name)

C. Date of Delivery

10-11-05

D. Is delivery address different from item 1?

If YES, enter delivery address below:

☐ Yes
☒ No

RECEIVED
OCT 14 2005
 EPA Region 8
 Ground Water Program

3. Service Type

- ☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee)

☐ Yes

U.S. Postal Service CERTIFIED MAIL RECEIPT (Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage \$

Certified Fee

Return Receipt Fee
 (Endorsement Required)

Restricted Delivery Fee
 (Endorsement)

Total Postage

Sent To

Street, Apt. N
 or PO Box N
 City, State, Zi

Steve Wall
 District Manager
 Petroglyph Energy, Inc
 4116 West 3000 So. Ioka Lane
 Roosevelt, UT 84066
OCT 5 2005

Postmark
 Here

PS Form 3800, January 2001

See Reverse for Instructions

7001 0320 0005 9387 8054

UIC Program Action : *Auth to Inject*

UIC Number: *UT20736-06482*

Well Name: *Ute Tribal 29-04*

Operator: *Petroglyph*

To:	Requested Action:	Mailcode	Initials	Date
Originator. <i>DWI</i> phone: <i>6155</i>		8P-W-GW	<i>DW</i>	<i>9/30/05</i>
UIC Review <input type="checkbox"/> DWJ <input type="checkbox"/> CT		8P-W-GW		
<i>BT</i> K Bartholow, Admin proof		8P-W-GW	<i>BT</i>	<i>9/30</i>
T Eagle, Dir, GWP <input type="checkbox"/> concur <input type="checkbox"/> signature		8P-W-GW		
L Johnson, Admin proof		8P-W		
D Thomas, Dir, WP <input type="checkbox"/> concur <input type="checkbox"/> signature		8P-W		
M Brennan, Admin proof		8-P		
S Tuber, ARA, OPRA <input type="checkbox"/> signature		8-P		
<i>Barb</i> K Bartholow, Admin date stamp & mail original letter & copy of docs to Addressee		8P-W-GW	<i>BT</i>	<i>10/5</i>
Originator make CC: copies		8P-W-GW		
J Taylor send Public Notice		8P-W-GW		
K Bartholow, Admin mail copies to CC's		8P-W-GW		
Originator File documents		8P-W-GW		

LEFT SIDE

- Concurrence Copy
- Request Letter & relevant information
- _____
- _____

RIGHT SIDE

- Response Letter
- _____
- _____

COMMENTS:



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 300 *200*
DENVER, CO 80202-2466
Phone 800-227-8917
<http://www.epa.gov/region08>

Ref: 8P-W-GW

CONCURRENCE COPY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

RE: Authorization to Inject
Ute Tribal 29-04
UIC Permit UT20736-06482
Antelope Creek Field, Duchesne County, Utah

Dear Mr. Wall:

Thank you for submitting information pertaining to the newly constructed or converted Ute Tribal 29-04 enhanced recovery injection well to the Region 8 Ground Water Program office of the Environmental Protection Agency (EPA). The "Prior To Commencing Injection" requirements for the Ute Tribal 29-04 injection well required well owner and operator Petroglyph Energy, Inc. to submit the following information to the Director:

1. A successful mechanical integrity test (MIT) demonstrating Part I Internal MI,
2. Pore pressure calculation of the proposed injection zone, and
3. completed EPA Form No. 7520-12.

All required information has been submitted, and has been reviewed and approved by the EPA. Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal 29-04 enhanced recovery injection well under the conditions of the Authorization for Additional Well and UIC Area Permit UT20736-00000 as modified.

As of this approval, responsibility for permit compliance and enforcement is transferred to the Region 8 UIC Technical Enforcement Program office. Therefore, please direct all future notification, reporting, monitoring and compliance correspondence to the following address, referencing your well and UIC Permit number on all correspondence regarding this well.

BP-W-GW
Dyke
9/30/05
9/30/05
8P-W-GW

Authorization to Inject Ute Tribal 29-04 UIC Permit UT20736-06482



Printed on Recycled Paper

Technical Enforcement Program - UIC
U.S. EPA Region 8, Mail Code 8ENF-UFO
999 18th Street, Suite 300-200
Denver, Colorado 80202-2466

The Director has determined that the maximum allowable surface injection pressure (MAIP) for the Ute Tribal 29-04 is **1655** psig. Please be reminded that it is the responsibility of the owner/operator to be aware of, and to comply with, all conditions of Authorization for Additional Well UT20736-06482 and EPA UIC Area Permit UT20736-00000 and relevant modifications as issued.

If you have any questions regarding this Authorization, please call Dan Jackson of my staff at (303) 312-6155. For questions regarding notification, testing, monitoring, reporting or other Permit requirements, the UIC Technical Enforcement Program may be reached by calling 1. ~~(800)~~ 227-8917.

Sincerely,

Tracy M. Eagle
Director
Ground Water Program

cc: Maxine Natchees, Chairperson
Uintah & Ouray Business Committee
Ute Indian Tribe
P.O. Box 190
Fort Duchesne, UT 84026

Chester Mills, Superintendent
BIA - Uintah & Ouray Indian Agency
P.O. Box 130
Fort Duchesne, UT 84026

Mr. Kenneth Smith
Executive Vice President and Chief Operating Officer
Petroglyph Energy, Inc.
555 S. Cole Blvd
Boise, ID 83709

Elaine Willie
Environmental Coordinator
Ute Indian Tribe
P.O. Box 460
Fort Duchesne, UT 84026

Gil Hunt
Technical Services Manager
Utah Division of Oil, Gas, and Mining
1594 West North Temple - Suite 1220
Salt Lake City, UT 84114-5801

Kirk Fleetwood, PE
BLM - Vernal District
170 South 500 East
Vernal, UT 84078

-4-

bcc w/o enclosures:

Nathan Wiser, 8 ENF-UFO